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(54) **Cleansing and/or freshening-liquid unit for a toilet bowl.**

(57) A cleansing and/or freshening unit capable of being suspended from the rim of a toilet bowl for the twofold purpose of spreading a fresh odor in the toilet room and introducing active substances into the flushing water with each flush. According to the invention, the unit comprises a reservoir (3) for active substance, such as liquid containing cleansing and air freshening agent, this reservoir (3) having its contents in constant communication with a porous mass (4A) which is arranged in the path of the flushing water when a unit has been suspended in a toilet bowl.

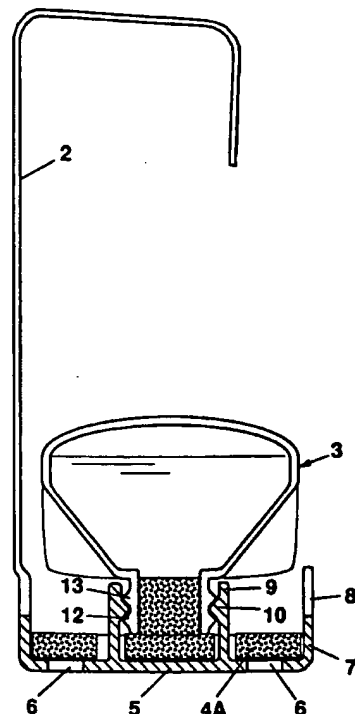


FIG.1

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This invention relates to a cleansing and/or freshening unit capable of being suspended from the rim of a toilet bowl for the twofold purpose of spreading a fresh odor in the toilet room and introducing active substances into the flushing water with each flush.

In known units of this type, use is made of blocks of cleansing and freshening substances in solid form, capable of being suspended by means of some suspension means from the rim of a toilet bowl in cage-shaped containers in the path of the flushing water.

A drawback of the known blocks of cleansing and freshening substances is that they have a short lifetime, the dosing is uneven and such blocks contain fillers that may be detrimental to the environment. An important drawback is that the air freshening effect of such blocks is limited because with each flush of the toilet, the active substance that is dispensed disappears immediately along with the flushing water.

The object of the present invention is to circumvent these drawbacks of known cleansing and/or freshening units capable of being suspended from the rim of a toilet bowl.

To that end, the unit according to the invention comprises a reservoir for active substance, such as liquid containing cleansing and air freshening agent, this reservoir having its contents in constant communication with a porous mass which is disposed in the path of the flushing water when a unit has been suspended in a toilet bowl.

When the toilet is not used, per unit time a substantially constant amount of liquid will evaporate via the porous mass and thus have an air freshening effect. With each flush, a likewise substantially constant amount of active substance will be carried along by the flushing water and thus have a cleansing effect. It is important that with the unit according to the invention, a double action is obtained, consisting, on the one hand, of a continuous, constant dispensation of freshening substance and, on the other, of a constant measure of cleansing action with each flush.

Material that is left behind as the perfume evaporates will be carried along and removed from the porous mass during flushing, whereby this mass is rinsed clean and clogging thereof is prevented.

In a preferred embodiment of the invention, the unit comprises a container, provided with a suspension means such as a hook, this container being open at the top and having a bottom provided with perforations, as well as a retaining means, arranged at the bottom, for the mouth of a liquid reservoir in which is arranged a liquid-permeable closure, and the porous mass extends on the container bottom over the perforations provided therein, in contact

with the liquid-permeable closure of the reservoir.

With this embodiment, an important effect is achieved, namely, a delayed action or aftereffect of the active substance after each flush. The point is that with each flush an amount of flushing water will remain behind on the porous mass, trickle through this mass and thereby carry along active substance and any residues through the subjacent bottom perforations and bring them into the water in the water seal of the toilet bowl, where the cleansing action and the diffusion of perfume can continue for some time after the flush.

The cleansing and freshening unit according to the invention therefore combines the advantages of constant dispensation of perfume, constant dispensation of active substance with each flush as long as liquid is present in the reservoir, and delayed action, i.e., after each flush the dispensation of active substance continues for some time.

To clarify the invention, one practical example of the cleansing and freshening unit will be described with reference to the accompanying drawings.

Fig. 1 is a schematic partly sectional side elevation of the unit in the service position some time after a flush;

Fig. 2 shows the unit directly after a flush; and

Fig. 3 shows a refillable bottle for liquid containing active substances.

According to the drawings, the cleansing and freshening unit is essentially composed of a container 1 having a suspension hook 2, a bottle 3 with cleansing and odorizing liquid and a spongy liquid-permeable closure 4B. In the operative position shown in Figs 1 and 2, in which the bottle is inverted, the closure 4B is in liquid-transmissive contact with a generally disc-shaped porous member 4A of a porous substance, which member 4A is arranged on the bottom 5 of the container.

In the embodiment shown, the container 1 has a bottom 5 with perforations or apertures 6 and an upright sidewall 7 in which passages 8 may be formed. Extending from the bottom 5 are retaining means 9, 10 for securing a liquid reservoir or bottle 11. In the embodiment shown, the retaining means are resilient strips 9 having inwardly directed projections 10.

Referring in particular to Fig. 3, the bottle 3, which is refillable, comprises a mouth or neck 11 with two rings 12 and 13 formed on the exterior thereof and capable of being closed by means of a cap 14 having a ring 15 extending inwards from the surface thereof, which ring 15 is capable of being snapped between the bottleneck rings 12, 13. Fig. 3 further shows an annular label 16, which can be removed after undoing the cap 14. Arranged in the bottleneck 11 is the spongy closure member 4B.

Bottles 3 for use in the toilet cleansing and freshening unit according to the invention can be filled with an aqueous solution of active substances such as foaming agent, perfume, disinfectant, bleach, coloring, emulsifying substances and a calcium-binding substance.

Fitting a full bottle 3 in the container 1 is effected by removing the cap 14 and the label 16, and moving the bottle in inverted position into the container 1, with the projections 10 of the resilient retaining strips 9 snapping between the rings 12, 13 formed on the bottleneck 11. In the mounted condition of a bottle, the axial positions of the rings 12, 13 and the projection 10 as well as the axial dimensions of the porous masses 4A and 4B are such that when the bottle 3 has been fitted in the container 1, the members 4A and 4B are in fixed mutual contact.

It is clear that for securing a bottle 3 in the container 1, other means can be used as well, such as threaded elements at the bottom 5 of the container and at the bottleneck.

It is further shown that the bottle 3 comprises radial gripping ribs 17. The bottom of the bottle is convex so as to prevent water from being retained on the bottom of the bottle in the service position.

The operation of the toilet cleansing and freshening unit is as follows:

The unit is suspended from the inwards overhanging rim of a toilet bowl by means of the hook 2, in such a manner that the container 1, with the bottle 3 facing the wall of the bowl, hangs partly under the rim. Thus, the unit has a constant effect in that liquid is absorbed from the bottle via the liquid-permeable member 4B into the porous member 4A and perfume evaporates therefrom so as to spread a fresh odor in the toilet room.

When the toilet is flushed, "instant action" is initiated in that flushing water falls from under the rim of the toilet bowl onto the unit, flowing along the ribs 17 over the porous member 4A and carrying along active substances for cleansing the bowl. After flushing, a fresh solution of the above-mentioned cleansing and odorizing substances remains behind in the water seal of the toilet bowl, as mentioned above.

As indicated in Fig. 2, after a flush a layer of water W is left behind above the porous mass 4A, the height of this layer of water being determined by the passages 8 serving as overflows. The residual water flows slowly through the disc-shaped member 4A and the apertures 6 in the container bottom 5. In the process, this residual water removes active substances and any residues of the perfume evaporation from the member 4A. The member 4A is thus purified and at the same time an important delayed action is obtained, namely, the delivery of active substances to the toilet bowl

is continued for some time after each flush.

#### Claims

1. A cleansing and freshening unit capable of being suspended from the rim of a toilet bowl for the twofold purpose of spreading a fresh odor in the toilet room and introducing active substances into the flushing water with each flush, characterized in that the unit comprises a reservoir (3) for active substance, such as liquid containing cleansing and air freshening agent, said reservoir (3) having its contents in constant communication with a porous mass (4A) which is arranged in the path of the flushing water when a unit has been suspended in a toilet bowl.
2. A cleansing and freshening unit according to claim 1, characterized in that the unit comprises a container (1), provided with a suspension means such as a hook (2), said container (1) being open at the top and having a bottom (5) provided with perforations (6), as well as a retaining means (9, 10), arranged at the bottom (5), for the mouth (11) of a liquid reservoir (3) in which is arranged a liquid-permeable closure (4B), and the porous mass (4A) extends on the container bottom (5) over the perforations (6) provided therein.
3. A cleansing and freshening unit according to claim 2, characterized in that the retaining means (9, 10, 12, 13) are constructed as resilient strips (9), extending from the container bottom (5), with inwardly extending projections (10) and, adapted for cooperation therewith, rings (12, 13) projecting from the neck (11) of the liquid reservoir (3).
4. A cleansing and freshening unit according to claim 3, characterized in that the liquid reservoir (3) can be closed by a cap (14) having a ring (15) projecting inwards from the surface thereof, said ring (15) being capable of being snapped between the rings (12, 13) of the reservoir neck.

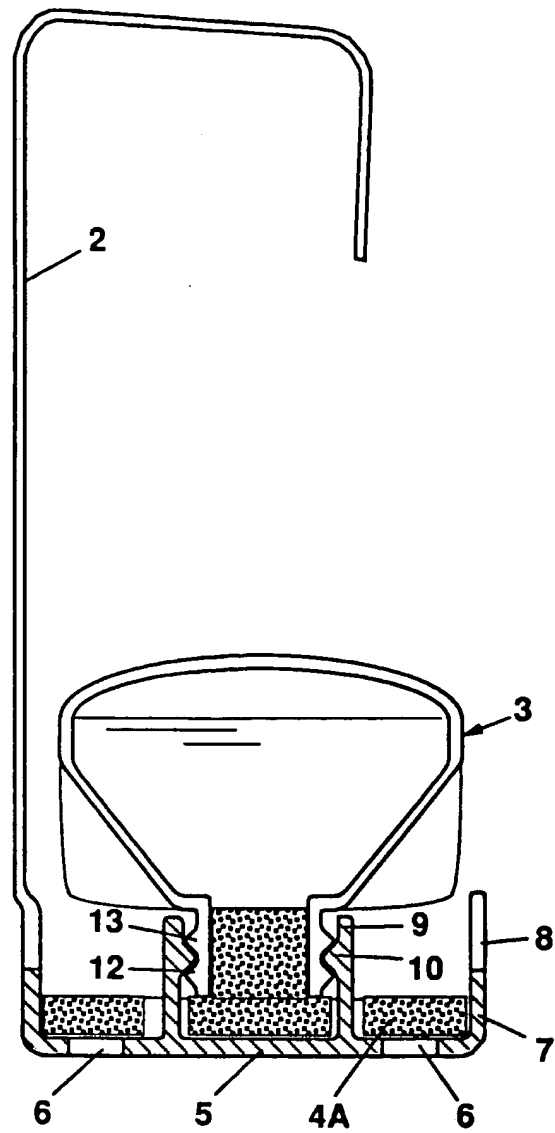


FIG.1

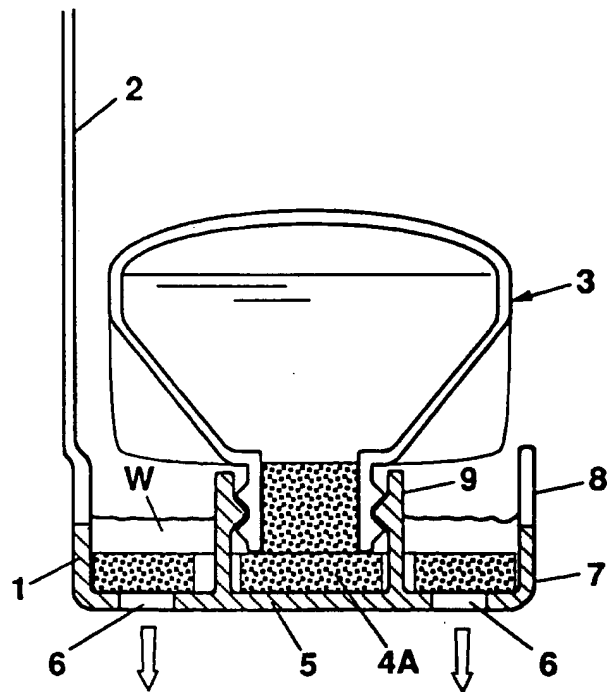


FIG. 2

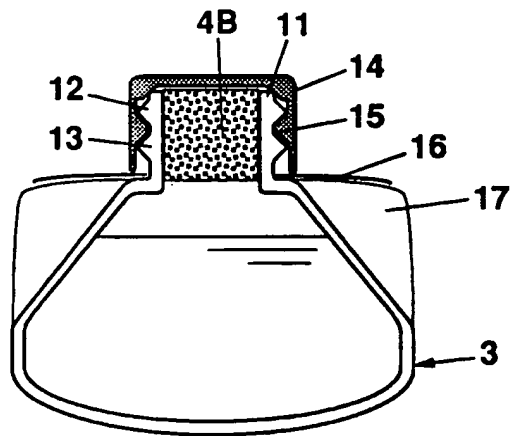


FIG. 3



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## EUROPEAN SEARCH REPORT

Application Number

EP 92 20 3234

| DOCUMENTS CONSIDERED TO BE RELEVANT  |  |   |   |
|--|--|---|---|
| Category   | Citation of document with indication, where appropriate, of relevant passages  | Relevant to claim                                   | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| X  | US-A-3 946 448 (T. SIOUFY)<br>* column 1, line 56 - column 2, line 22 *<br>* column 3, line 67 - column 4, line 11;<br>figure 1 *      | 1   | E03D9/03                                      |
| Y  | ---  | 2,3   |   |
| Y  | US-A-3 965 497 (D. CORSETTE)<br>* column 2, line 30 - column 3, line 31 *<br>* column 4, line 30 - column 5, line 18;<br>figures 2-5 * | 2,3   |   |
| X  | ---  | 1   |   |
| X  | DE-B-1 199 196 (W. TESCHNER)<br>* column 3, line 12 - line 23; figure 1 *<br>---   | 1   |   |
|  | GB-A-1 070 188 (CALMIC)<br>* page 2, line 60 - line 114; figure 1 *<br>-----   |   |   |
|  |  |   | TECHNICAL FIELDS<br>SEARCHED (Int. Cl.5)      |
|  |  |   | E03D  |
| The present search report has been drawn up for all claims   |  |   |   |
| Place of search<br>THE HAGUE   |  | Date of completion of the search<br>12 JANUARY 1993 | Examiner<br>KRIEKOUKIS S.                     |
| <b>CATEGORY OF CITED DOCUMENTS</b><br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>I : document cited for other reasons<br>.....<br>& : member of the same patent family, corresponding document |  |   |   |